

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application;

1. (Currently Amended) A wireless communication system that forms a network in an autonomous distributed manner without [[the]] a relationship of a controlling station and a controlled station, the wireless communication system ~~being characterized in that comprising~~

a transmitting-side or receiving-side communication apparatus ~~that, which~~ attempts to perform communication with a guaranteed bandwidth, issues a notification indicating a setting of a bandwidth guaranteed period in ~~own a~~ communication range of itself and another communication apparatus that receives the notification does not perform a communication operation in the bandwidth guaranteed period.

2. (Currently Amended) The wireless communication system according to claim 1, ~~characterized in that wherein~~ the transmitting-side or receiving-side communication apparatus describes information regarding the bandwidth guaranteed period in beacon information transmitted for each predetermined frame period.

3. (Currently Amended) The wireless communication system according to claim 2, ~~characterized in that~~ wherein the receiving-side communication apparatus creates timing utilized for a bandwidth-guaranteed communication, in a pseudo manner, to have [[the]] a same state as timing of transmitting ~~own~~ a beacon of its own and notifies [[of]] the timing utilized for the bandwidth-guaranteed communication.

4. (Currently Amended) The wireless communication system according to claim 1, ~~characterized in that~~ wherein, in a period in which any communication apparatus has not set a ~~band~~ guarantee guaranteed bandwidth, each communication apparatus performs random access based on a collision avoidance operation that starts transmission after detecting that no transmission is performed from another communication apparatus.

5. (Currently Amended) The wireless communication system according to claim 1, ~~characterized in that~~ wherein the transmitting-side or receiving-side communication apparatus sets a reservation period in own frame period and performs

communication with a guaranteed bandwidth by utilizing the reservation period.

6. (Currently Amended) The wireless communication system according to claim 1, ~~characterized in that~~ wherein each communication apparatus collects beacon information from neighboring communication apparatuses; obtains information regarding bandwidth guaranteed periods; and does not set, as its own bandwidth guaranteed period, a period that is set as [[the]] bandwidth guaranteed periods by the neighboring communication apparatuses.

7. (Currently Amended) The wireless communication system according to claim 1, ~~characterized in that~~ wherein the transmitting-side or receiving-side communication apparatus collects beacon information from neighboring communication apparatuses; obtains information regarding bandwidth guaranteed periods; and sets, as [[the]] its own bandwidth guaranteed period, a period that is not set as [[the]] bandwidth guaranteed periods by the neighboring communication apparatuses.

8. (Currently Amended) The wireless communication system according to claim 1, ~~characterized in that~~ wherein the transmitting-side or receiving-side communication apparatus obtains information regarding a bandwidth guaranteed period from a communication apparatus at another end of a communication and sets, as [[the]] its own bandwidth guaranteed period, a period that is not set as bandwidth guaranteed periods by neighbors of the communication apparatus.

9. (Currently Amended) A wireless communication system that forms a network in an autonomous distributed manner without [[the]] a relationship of a controlling station and a controlled station, the wireless communication system being ~~characterized in that~~ comprising

a transmitting-side or receiving-side communication apparatus that sets a priority utilization period utilizable with priority in its own frame period and performs communication with a guaranteed bandwidth by utilizing the priority utilization period with priority.

10. (Currently Amended) The wireless communication system

according to claim 9, ~~characterized in that wherein~~ the transmitting-side or receiving-side communication apparatus describes information regarding the priority utilization period in beacon information transmitted for each predetermined frame period.

11. (Currently Amended) The wireless communication system according to claim 9, ~~characterized in that wherein~~, in a period in which any communication apparatus has not set a priority utilization period, each communication apparatus performs random access based on a collision avoidance operation that starts transmission after detecting that no transmission is performed from another communication apparatus.

12. (Currently Amended) The wireless communication system according to claim 9, ~~characterized in that wherein~~, before the priority utilization period ends, when the transmitting-side ~~communication apparatus and the~~ or receiving-side communication apparatus have completed the communication with a guaranteed bandwidth or have not performed the communication, other communication apparatuses perform

arbitrarily communication with each other in the priority utilization period.

13. (Currently Amended) The wireless communication system according to claim 6, ~~characterized in that~~ wherein the transmitting-side or receiving side communication apparatus temporarily delays [[the]] a start of communication from ~~the~~ self itself and performs transmission based on a priority utilization after [[the]] an end of another communication, in a case in which the another communication is performed at a point of time when a priority utilization period set by the self arrives.

14. (Currently Amended) The wireless communication system according to claim 9, ~~characterized in that~~ wherein each communication apparatus collects beacon information from neighboring communication apparatuses; obtains information regarding priority utilization periods; and does not set, as its own priority utilization period, a period that is set as [[the]] priority utilization periods by the neighboring communication apparatuses.

15. (Currently Amended) The wireless communication system according to claim 9, ~~characterized in that~~ wherein the transmitting-side or receiving-side communication apparatus collects beacon information from neighboring communication apparatuses; obtains information regarding priority utilization periods; and sets, as its own priority utilization period, a period that is not set as [[the]] priority utilization periods by the neighboring communication apparatuses.

16. (Currently Amended) The wireless communication system according to claim 9, ~~characterized in that~~ wherein the transmitting-side or receiving-side communication apparatus obtains information regarding a priority utilization period from a communication apparatus at another end of a communication and sets, as its own priority utilization period, a period that is not set as priority utilization periods by neighbors of the transmitting-side or receiving-side communication apparatus.

17. (Currently Amended) A wireless communication apparatus that performs a wireless communication operation in

an autonomous distributed manner without [[the]] a relationship of a controlling station and a controlled station, the wireless communication apparatus being characterized by comprising:

communicating means for transmitting/receiving a wireless signal within its own communication range;

bandwidth-guaranteed-period setting means for requesting, within [[the]] its own communication range, [[the]] setting of a bandwidth guaranteed period in which a bandwidth is guaranteed; and

communication controlling means for executing a bandwidth-guaranteed communication in response to [[the]] an arrival of its own bandwidth guaranteed period.

18. (Currently Amended) The wireless communication apparatus according to claim 17, characterized in that wherein further comprising means for storing a bandwidth-guaranteed-period setting notification received from another wireless communication apparatus,

wherein the bandwidth-guaranteed-period setting means sets [[the]] its own bandwidth guaranteed period while avoiding a bandwidth guaranteed period that is already set by

the another wireless communication apparatus, and

the communication controlling means does not perform a communication operation in the bandwidth guaranteed period that is set by the another communication apparatus.

19. (Currently Amended) The wireless communication apparatus according to claim 17, ~~characterized in that wherein~~, in a period in which any communication apparatus has not set a bandwidth ~~guarantee~~ guaranteed period, the communication controlling means performs random access based on a collision avoidance operation that starts transmission after detecting that no transmission is performed from another wireless communication apparatus.

20. (Currently Amended) The wireless communication apparatus according to claim 17, ~~characterized in that wherein~~ the bandwidth-guaranteed-period setting means describes information regarding the bandwidth guaranteed period in ~~information of a beacon to be transmitted for each predetermined frame period and transmits the beacon to thereby inform, within [[the]] its own communication range, about the setting of the bandwidth guaranteed period.~~

21. (Currently Amended) The wireless communication apparatus according to claim 20, ~~characterized in that wherein~~ the bandwidth-guaranteed-period setting means sets [[the]] its own bandwidth guaranteed period by avoiding the reception timing of a beacon.

22. (Currently Amended) The wireless communication apparatus according to claim 20, ~~characterized in that wherein~~ the bandwidth-guaranteed-period setting means creates timing utilized for a bandwidth-guaranteed communication in [[the]] a frame period, in a pseudo manner, to have [[the]] a same state as timing of transmitting its own beacon and notifies of the timing utilized for the bandwidth-guaranteed communication.

23. (Currently Amended) The wireless communication apparatus according to claim 17, ~~characterized in that wherein~~ the bandwidth-guaranteed-period setting means sets a reservation period for performing communication with a guaranteed bandwidth in its own frame period and the communication controlling means performs communication with a guaranteed bandwidth in [[the]] its own reservation period.

24. (Currently Amended) The wireless communication apparatus according to claim 17, ~~characterized in that wherein~~ the bandwidth-guaranteed-period setting means of each wireless communication apparatus collects beacon information from neighboring wireless communication apparatuses; obtains information regarding bandwidth guaranteed periods; and does not set, as [[the]] its own bandwidth guaranteed period, a period that is set as [[the]] its bandwidth guaranteed periods by the neighboring wireless communication apparatuses.

25. (Currently Amended) The wireless communication apparatus according to claim 17, ~~characterized in that wherein~~ the bandwidth-guaranteed-period setting means ~~of the transmitting side or receiving side communication apparatus~~ collects beacon information from neighboring wireless communication apparatuses; obtains information regarding bandwidth guaranteed periods; and sets a period that is not set as [[the]] bandwidth guaranteed periods by the neighboring communication apparatuses to [[the]] own bandwidth guaranteed period.

26. (Currently Amended) The wireless communication apparatus according to claim 17, ~~characterized in that wherein~~ the bandwidth-guaranteed-period setting means ~~of the transmitting side or receiving side communication apparatus~~ obtains information regarding a bandwidth guaranteed period from a communication apparatus at another end of a communication and sets a period that is not set as bandwidth guaranteed periods by neighbors of the wireless communication apparatus to the own bandwidth guaranteed period.

27. (Currently Amended) A wireless communication apparatus that performs a wireless communication operation in an autonomous distributed manner without ~~[[the]]~~ a relationship of a controlling station and a controlled station, the wireless communication apparatus ~~being~~ characterized by comprising:

communicating means for transmitting/receiving a wireless signal in its own communication range;

priority-utilization-period setting means for setting a priority utilization period for performing communication with a guaranteed bandwidth in its own frame period and notifying, within the own communication range, of the priority

utilization period; and

communication controlling means for performing communication with a guaranteed bandwidth, with priority, in response to [[the]] an arrival of [[the]] its own priority utilization period.

28. (Currently Amended) The wireless communication apparatus according to claim 27, ~~characterized in that wherein~~ the priority-utilization-period setting means describes information regarding the priority utilization period in ~~information of~~ a beacon ~~to be~~ transmitted for each predetermined frame period and transmits the beacon to thereby notify, within [[the]] its own communication range, of the setting of the priority utilization period.

29. (Currently Amended) The wireless communication apparatus according to claim 27, ~~characterized in that wherein~~ the communication controlling means performs random access based on a collision avoidance operation that starts transmission after detecting that no transmission is performed from another communication apparatus, as required, in a period in which ~~any communication does not set a no~~ priority

utilization is set.

30. (Currently Amended) The wireless communication apparatus according to claim 27, ~~characterized in that wherein~~, before the priority utilization period set by the bandwidth-guaranteed-period setting means ends, when communication utilizing a band with priority has ~~been~~ finished or has not been performed, arbitrarily communication between other wireless communication apparatuses is permitted in the priority utilization period.

31. (Currently Amended) The wireless communication apparatus according to claim 27, ~~characterized in that wherein~~ the communication controlling means temporarily delays [[the]] a start of communication in the priority utilization period and performs transmission based on the priority utilization after [[the]] an end of another communication, in a case in which the another communication is performed at a ~~point of~~ time when the priority utilization period set by ~~the self itself~~ arrives.

32. (Currently Amended) The wireless communication

apparatus according to claim 27, characterized in that the ~~bandwidth-guaranteed-period~~ priority-utilization-period setting means of each wireless communication apparatus collects beacon information from neighboring wireless communication apparatuses; obtains information regarding priority utilization periods; and does not set, as its own priority utilization period, a period that is set as [[the]] priority utilization periods by the neighboring wireless communication apparatuses.

33. (Currently Amended) The wireless communication apparatus according to claim 27, ~~characterized in that wherein~~ the priority-utilization-period setting means ~~of the transmitting-side or receiving-side communication apparatus~~ collects beacon information from neighboring communication apparatuses; obtains information regarding priority utilization periods; and sets, as its own priority utilization period, a period that is not set as [[the]] priority utilization periods by the neighboring wireless communication apparatuses.

34. (Currently Amended) The wireless communication

apparatus according to claim 27, ~~characterized in that wherein~~ the priority-utilization-period setting means ~~of the~~ ~~transmitting side or receiving side communication apparatus~~ obtains information regarding a priority utilization period from a communication apparatus at another end of a communication and sets a period that is not set as priority utilization periods by neighbors of the wireless communication apparatus to own priority utilization period.

35. (Currently Amended) A wireless communication method for performing a wireless communication operation in an autonomous distributed manner without [[the]] a relationship of a controlling station and a controlled station, the wireless communication method ~~being characterized by~~ comprising:

a bandwidth-guaranteed-period setting step of issuing, [[to]] within its own communication range, a notification indicating [[the]] a setting of a bandwidth guaranteed period in which a bandwidth is guaranteed; and

a communication controlling step of executing a bandwidth-guaranteed communication in response to [[the]] an arrival of its own bandwidth guaranteed period.

36. (Currently Amended) The wireless communication method according to claim 35, ~~characterized by~~ further comprising a step of storing a bandwidth-guaranteed-period setting notification received from another communication apparatus, and

wherein the bandwidth-guaranteed-period setting ~~means~~ step sets [[the]] its own bandwidth guaranteed period while avoiding a bandwidth guaranteed period that is already set by [[the]] another communication apparatus, and

the communication controlling ~~means~~ step does not perform a communication operation in the bandwidth guaranteed period that is set by the another communication apparatus.

37. (Currently Amended) The wireless communication method according to claim 35, ~~characterized in that~~ wherein, in a period in which any communication apparatus has not set a bandwidth guarantee, random access based on a collision avoidance operation, which starts transmission after detecting that no transmission is performed from another communication apparatus, is performed in the communication controlling ~~steps~~ step.

38. (Currently Amended) The wireless communication method according to claim 35, ~~characterized in that wherein~~, in the bandwidth-guaranteed-period setting step, information regarding the bandwidth guaranteed period is described in ~~information of~~ a beacon ~~to be~~ transmitted for each predetermined frame period and the beacon is transmitted to thereby inform, within [[the]] its own communication range, about the setting of the bandwidth guaranteed period.

39. (Currently Amended) The wireless communication method according to claim 38, ~~characterized in that wherein~~, in the bandwidth-guaranteed-period setting step, [[the]] its own bandwidth guaranteed period is set by avoiding [[the]] reception timing of [[a]] the beacon.

40. (Currently Amended) The wireless communication method according to claim 38, ~~characterized in that wherein~~, in the bandwidth-guaranteed-period setting step, timing utilized for a bandwidth-guaranteed communication in [[the]] a frame period is created in a pseudo manner to have [[the]] a same state as timing of transmitting its own beacon and a notification

indicating the timing utilized for the bandwidth-guaranteed communication is issued.

41. (Currently Amended) The wireless communication method according to claim 35, ~~characterized in that~~ wherein, in the bandwidth-guaranteed-period setting step, a reservation period for performing communication with a guaranteed bandwidth is set in own frame period and, in its the communication controlling step, communication with a guaranteed bandwidth is performed in the ~~own~~ reservation period.

42. (Currently Amended) The wireless communication method according to claim 35, characterized in that, in the bandwidth-guaranteed-period setting step of each communication apparatus, beacon information is collected from neighboring communication apparatuses, information regarding bandwidth guaranteed periods is obtained, and a period that is set as [[the]] bandwidth guaranteed periods by the neighboring communication apparatuses is not set as [[the]] its own bandwidth guaranteed period.

43. (Currently Amended) The wireless communication method

according to claim 35, ~~characterized in that wherein~~, in the bandwidth-guaranteed-period setting step ~~of a transmitting-side or receiving-side communication apparatus~~, beacon information is collected from neighboring communication apparatuses, information regarding bandwidth guaranteed periods is obtained, and a period that is not set as [[the]] bandwidth guaranteed periods by the neighboring communication apparatuses is set to [[the]] its own bandwidth guaranteed period.

44. (Currently Amended) The wireless communication method according to claim 35, ~~characterized in that wherein~~, in the bandwidth-guaranteed-period setting step ~~of a transmitting-side or receiving-side communication apparatus~~, information regarding a bandwidth guaranteed period is obtained from a communication apparatus at another end of a communication and a period that is not set as bandwidth guaranteed periods by neighbors of the communication apparatus is set to [[the]] its own bandwidth guaranteed period.

45. (Currently Amended) A wireless communication method that performs a wireless communication operation in an

autonomous distributed manner without [[the]] a relationship of a controlling station and a controlled station, the wireless communication method ~~being characterized by~~ comprising:

a priority-utilization-period setting step of setting a priority utilization period for performing communication with a guaranteed bandwidth in its own frame period and notifying, within [[a]] its own communication range, of the priority utilization period; and

a communication controlling step of performing communication with a guaranteed bandwidth, with priority, in response to [[the]] an arrival of the ~~own~~ priority utilization period.

46. (Currently Amended) The wireless communication method according to claim 45, ~~characterized in that wherein~~, in the priority-utilization-period setting step, information regarding the priority utilization period is described in ~~information of~~ a beacon ~~to be~~ transmitted for each predetermined frame period and the beacon is transmitted to thereby notify, within [[the]] its own communication range, of the setting of the priority utilization period.

47. (Currently Amended) The wireless communication method according to claim 45, ~~characterized in that~~ wherein, in a period in which any communication does not set a priority utilization, random access based on a collision avoidance operation, which starts transmission after detecting that no transmission is performed from another communication apparatus, is performed as required.

48. (Currently Amended) The wireless communication method according to claim 45, ~~characterized in that~~ wherein, before the priority utilization period set in the priority-utilization-period setting ~~means~~ step ends, when communication utilizing a bandwidth with priority has ~~been~~ finished or has not been performed, arbitrarily communication between other communication apparatuses is permitted in the priority utilization period.

49. (Currently Amended) The wireless communication method according to claim 45, ~~characterized in that~~ wherein, in the communication controlling step, the start of communication in the priority utilization period is temporarily delayed and

transmission based on the priority utilization is performed after [[the]] an end of another communication, in a case in which the another communication is performed at a ~~point of~~ time when the priority utilization period set by ~~the self~~ itself arrives.

50. (Currently Amended) The wireless communication method according to claim 45, ~~characterized in that~~ wherein, in the priority-utilization-period setting ~~means of~~ step in each communication apparatus, beacon information is collected from neighboring communication apparatuses, information regarding priority utilization periods is obtained; and a period that is set as [[the]] priority utilization periods by the neighboring communication apparatuses is not set as its own priority utilization period.

51. (Currently Amended) The wireless communication method according to claim 45, ~~characterized in that~~ wherein, in the priority-utilization-period setting step ~~of a transmitting side or receiving side communication apparatus~~, beacon information is collected from neighboring communication apparatuses, information regarding priority utilization

periods is obtained, and a period that is not set as [[the]] priority utilization periods by the neighboring communication apparatuses is its set as own priority utilization period.

52. (Currently Amended) The wireless communication method according to claim 45, ~~characterized in that wherein~~, in the priority-utilization-period setting step of a ~~transmitting-side or receiving-side communication apparatus~~, information regarding a priority utilization period is obtained from a communication apparatus at another end of a communication and a period that is not set as priority utilization periods by neighbors of the communication apparatus is set to its own priority utilization period.

53. (Currently Amended) A computer program described in a computer-readable format so that processing for performing a wireless communication operation in an autonomous distributed manner without [[the]] a relationship of a controlling station and a controlled station is executed on a computer system, the computer program ~~being characterized by~~ comprising:

a bandwidth-guaranteed-period setting step of notifying, within its own communication range, of [[the]] a setting of a

bandwidth guaranteed period in which a bandwidth is guaranteed; and

a communication controlling step of executing a bandwidth-guaranteed communication in response to [[the]] an arrival of its own bandwidth guaranteed period.

54. (Currently Amended) The computer program according to claim 53, characterized by further comprising a step of storing a bandwidth-guaranteed-period setting request received from another communication apparatus, and

wherein, in the bandwidth-guaranteed-period setting step, [[the]] its own bandwidth guaranteed period is set while avoiding a bandwidth guaranteed period that is already set by [[the]] another communication apparatus, and

in the communication controlling step, a communication operation is not performed in the bandwidth guaranteed period that is set by [[the]] another communication apparatus.

55. (Currently Amended) A computer program described in a computer-readable format so that processing for performing a wireless communication operation in an autonomous distributed manner without [[the]] a relationship of a controlling station

and a controlled station is executed on a computer system, the computer program ~~being characterized by~~ comprising:

a priority-utilization-period setting step of setting a priority utilization period for performing communication with a guaranteed bandwidth in its own frame period and notifying, within its own communication range, of the priority utilization period; and

a communication controlling step of performing communication with a guaranteed bandwidth, with priority, in response to [[the]] an arrival of [[the]] its own priority utilization period.